Project Baseline Summary Report

Data Source: **EM CDB** Report Number: **GEN-01b**

Operations/Field Office: **Oakland** Print Date: **3/9/2000**

Site Summary Level: **Lawrence Berkeley National Laboratory** HQ ID: **0260**

Project **OK-003 / LBNL Soils and Groundwater (Environmental Restoration)**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Purpose of Project: The LBNL site has been operated by U.C. California for DOE since the early 1930's for a wide range of energy-related research activities including research in nuclear and high-energy physics, accelerator research and development, materials research, research in chemistry, geology, molecular biology, and biomedical research. In performing this research, many types of chemicals, including hazardous and radioactive materials have been used and stored at the site. Past hazardous waste management practices and facility operations at the LBNL site have created soil and groundwater contamination by such contaminants as VOC's, petroleum hydrocarbons, PCBs, Freon, mercury, and radionuclides. Since 1993, the LBNL Hazardous Waste Handling Facility has operated under a RCRA Part B permit. The permit requires LBNL to investigate and remediate any past releases from solid waste management units(SWMUs) and areas of concern(AOCs). The objectives of the LBNL ER Soil and Groundwater Program is to investigate and address cleanup for all releases of hazardous and/or radioactive waste to soil and groundwater that may have occured at the site. Cleanup activities will decrease human and environmental risk at LBNL through removal and/or treatment of contaminated soil and groundwater.

Definition of Scope: The project has been designed to conform to RCRA Guidance and Regulations. To date, LBNL has identified (not including HWHF) 163 potential release sites located throughout the site. The investigation portion of the scope of work has been split into three phases. Phases I, II have been completed. Phase III is in progress. LBNL is drilling boreholes, installing monitoring wells, and taking samples and analyzing surface water, soil, and groundwater. These activities allow LBNL to perform groundwater contamination investigations, surface water and sediment investigations, geological investigations, vadose zone investigations, hydrogeologic investigations and risk assessment. These investigations allowed LBNL to develop various interim corrective measures and determine the need for final corrective measures studies to cleanup the soil and groundwater. Proposed remediation includes ongoing monitoring, maintenance, and operation of wells and treatment systems and performing corrective measures. Corrective measures will be performed by developing a corrective measures plan, performing a corrective measures study which includes bench scale treatibility studies such as DNAPL treatibility, soil flushing and PCB biodegradation. It includes pilot scale studies of various technologies, including vapor extraction/water treatment along the Bldg. 53 slope, in-situ/ex-situ treatment at the Old Town Plume, and methanotropic in-situ treatment at the Old Town Plume. Remedy selections will be identified in a corrective measures study report. Soil and groundwater will be cleaned up through implementation of the proposed corrective measures which will include soil excavation and disposal and groundwater treatment.

Technical Approach: The project has been designed to conform to RCRA Guidance and Regulations. LBNL has divided the characterization and interim corrective measures up into three phases. LBNL has issued RCRA Facility Investigation progress reports for Phases I, II & III. Under these characterization phases, LBNL has investigated the SWMUs and AOCs designated in the RFA to determine if a release has actually occurred and to what extent. LBNL is drilling boreholes, drilling monitoring wells, taking measurements on surface water, and sampling the soil and water. These activities allow LBNL to perform groundwater contamination investigations, surface water and sediment investigations, geological investigations, vadose zone investigations, hydrogeologic investigations, and risk assessment. These investigations, in turn have allowed LBNL to identify needs such as removal of tritium from groundwater (Oakland Site Technology Need No. 8, Removal of tritium from water) and to develop various interim corrective measures.
LBNL has implemented ICMs to reduce the potential of contaminated groundwater impacting surface water or migrating off site. Groundwater extraction and GAC treatment systems have been installed to help control migration of the Old Town Plume, the Building 71 VOC Plume, and the Building 37 VOC Plume. In addition, hydrauger effluent near Building 51 is treated to prevent contamination of surface water.

Project Description Narratives

Other ICMs implemented at LBNL have included the following: reconstruction of slope stability wells with surface seals to prevent infiltration of potentially contaminated surface runoff, excavation and disposal of contaminated soils from SWMUs and construction sites; and removal of USTs and associated contaminated soil.

As a first step in the Corrective Measure Studies (CMS) process, LBNL plans to evaluate potential remediation technologies by conducting bench scale and pilot tests. Site-specific pilot test may be recommended at selected LBNL sites to assess the treatability of soil and/or groundwater contamination. Site-specific work plans will be prepared to describe pilot test objectives, methods, and procedures. If pilot testing is successful, results could be used to design and implement full-scale remediation systems.

Project Status in FY 2006:

The LBNL RCRA assessment and cleanup of soil and groundwater is planned to be completed in FY 2003. Long term monitoring and water treatment facility operation and maintenance is planned through FY2032. Therefore, by the end of FY2006, LBNL will have cleaned up the site thru interim corrective measures and final corrective measures which will have removed contaminated soil to acceptable standards and treatment systems will be operating that capture contaminated groundwater to prevent further migration of contaminants. Where possible, removal and cleanup of groundwater will be complete.

Post-2006 Project Scope:

The LBNL project will have been remediated except those systems requiring long term monitoring and operations and maintenance including groundwater treatment systems.

Project End State

LBNL will meet the EM site end state of RCRA site clean up by reducing to acceptable levels or eliminating contamination from past releases to the soil and groundwater after the additional project- PBS OK0261 "Closure of the Hazardous Waste Handling Facility" is accomplished. The HWHF closure project was finished in FY98. The LBNL soil and groundwater cleanup project includes long term monitoring and water treatment operation and maintenance following project completion in FY 2003. Operation of treatment systems and maintenance will continue until FY2032 at which time remediation is considered sufficient and the EM LTS&M will end. The Site landlord mormal S&M activities will continue to monitor the site at this point. LBNL is fully functional as a national laboratory and upon completion of remediation activities at the site the land use will remain consistent with current usage.

The overall objective of the LBNL restoration program is to mitigate threats to public health and the environment resulting from past releases of hazardous materials. When complete, the Environmental Restoration program (ERP) at LBNL will have met all regulatory requirements as they relate to past releases at the site. A mutually agreeable end state (consistent with requirements set by regulators and goals agreed to by LBNL, DOE and stakeholders) will be achieved with respect to restoration activities. Cleanup of contamination will be complete, and/or ongoing treatment systems will be installed and operating. Public concern for the outcome of restoration activities at LBNL is high. It is imperative that DOE and LBNL maintain credibility with these stakeholders by keeping them involved (as allowed by the program), insure that they are informed, and to answer their concerns directly. It is therefore important that cleanup and restoration activities be completed in a timely manner, and that any residual risks be thoroughly understood and acceptable to all stakeholders. A summary of project objectives follows: 1) Health and Safety: protect the health and safety

Project Description Narratives

of workers and the public and minimize risks posed by contaminated sites; 2) Regulatory: complete site characterization, interim corrective measures (ICMs) and remediation in accordance with RCRA Part B Permit; conduct radioactive decontamination activities in accordance with DOE guidlines and applicable regulations; prioritize release sites by relative risk to humans and the environment and remediate higher risk sites first; negotiate No Action where appropriate.

Cost Baseline Comments:

The LBNL cost estimate is based upon detailed bottoms up type activity based cost estimates. The following additional items form the basis of the cost Baseline:
1) The cost estimates for the soil and groundwater tasks were based on the scope of work documented in current work plans and work to be documented in future work plans.
2) Escalation rates are applied and based on DOE approved rates for EM.
3) Contingency has been included and varies due to the type of tasks and the level of estimate detail. For example soil and groundwater uses a contingency of 7% to 20% for various tasks and project management uses 3%.

Safety & Health Hazards:

The primary contaminants of soil and groundwater are VOC`s, petroleum hydrocarbons, PCB`s, freon, mercury, and radionuclides. LBNL performed a RCRA facility assessment which identified 163 SWMU`s and AOC`s. LBNL will perform additional characterization as they perform interim corrective measures and develop remediation plans. In addition LBNL has performed a risk assessment for tritium and other contaminants, and will continue to monitor wells drilled throughout the site.

Safety & Health Work Performance:

Work will be completed in accordance with activities described in work authorization packages. A site specific H&S Plan has been prepared describing hazards and mitigation techniques that will be utilized to enhance worker safety. All project staff will recieve proper H&S training. Meetings are held to address H&S issues and /or concerns to eliminate/minimize H&S incidents. Sufficient resources will be allocated to ensure that all activities are conducted in a safe manner.

PBS Comments:

The goal of the ER Program at LBNL is to accomplish as much remediation and risk reduction as possible through the interim corrective measures process. Risk reduction and mitigation can be more quickly accomplished at release sites through interim corrective measures versus the more extensive corrective measures process. As characterization of release sites is achieved, a decision course is utilized to determine if the ICM process is applicable. The close working relationship developed with regulators has proven invaluable, as regulatory approval and implementation of ICMs occurs in a timely manner. To date, three major plumes have been cleaned up, and 700 CY of contaminated soil have been removed. Plume containment and remediation have been accomplished with low cost, low tech carbon treatment.

Disposition of waste streams generated by ER activities is as follows: Groundwater that is contaminated with hazardous constituents is recovered and treated on site. No clean up technology is identified for tritiated groundwater. One option is to mitigate tritium through natural attenuation. However, LBNL is currently investigating the feasibility of removal and off-site disposal of tritium contaminated soil and groundwater. Approximate waste

Project Description Narratives

types and volumes are 2,262 cubic meters of hazardous soil/debris waste that is direct disposed, 7,201 cubic meters of hazardous soil/debris waste that is treated insitu, and 71,293 cubic meters of hazardous aqueous waste that is treated.

Baseline Validation Narrative:

In April 1996, DOE Oakland performed a cost validation on the Soil and Groundwater project for FY1997 at LBNL. In performing this validation DOE/OAK prepared a detailed bottoms-up type estimate based on the scope of work identified by LBNL. DOE/OAK used this independent estimate to compare with the estimate prepared by LBNL for the Soil and Groundwater project. A report was prepared that discussed the major differences point by point and meetings were held with the site to reconcile the cost differences. The review team based their cost estimates on costs developed from similar type projects at other government sites and private industry.

General PBS Information

Project Validated? Yes **Date Validated:** 4/4/1996

Has Headquarters reviewed and approved project? No

Date Project was Added: 12/1/1997

Baseline Submission Date: 7/13/1999

FEDPLAN Project? Yes

Drivers:

CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
N	Y	N	N	N	Y	Y	Y

Project Identification Information

DOE Project Manager: Hemant Patel

DOE Project Manager Phone Number: 510-637-1568

DOE Project Manager Fax Number: 510-637-2031

DOE Project Manager e-mail address: hemant.patel@oak.doe.gov

Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

Project Baseline Summary Report

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	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS Baseline (current year dollars)	27,466	50,169	77,635	2,987	2,800	3,059	2,731	3,500	3,500	3,500	3,500	3,500	1,300	1,300	1,320
PBS Baseline (constant 1999 dollars)	26,204	31,912	58,116	2,987	2,800	3,059	2,731	3,500	3,408	3,338	3,269	3,202	1,165	1,141	1,135
PBS EM Baseline (current year dollars)	27,466	50,169	77,635	2,987	2,800	3,059	2,731	3,500	3,500	3,500	3,500	3,500	1,300	1,300	1,320
PBS EM Baseline (constant 1999 dollars)	26,204	31,912	58,116	2,987	2,800	3,059	2,731	3,500	3,408	3,338	3,269	3,202	1,165	1,141	1,135

	2007	2008	2009	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
PBS Baseline (current year dollars)	1,356	1,392	1,430	1,469	7,960	9,094	10,390	11,869	5,209	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	1,142	1,148	1,155	1,162	5,918	6,094	6,276	6,461	2,556	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	1,356	1,392	1,430	1,469	7,960	9,094	10,390	11,869	5,209	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	1,142	1,148	1,155	1,162	5,918	6,094	6,276	6,461	2,556	0	0	0	0	0	0	0

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070

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Project **OK-003 / LBNL Soils and Groundwater (Environmental Restoration)**

2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project: 9/30/2003

Current Projected End Date of Project: 9/30/2032

Explanation of Project Completion Date Difference (if applicable):

The difference in completion date is due to the current projected completion date is the project end date (including S&M)whereas the previous date is the mission complete date and does not include S&M.

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	53,038	**Actual 1997 Cost:**	2,800	**Actual 1998 Cost:**	2,731
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	47,507	**Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):**			1,283
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	48,790				

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):		
Cost Growth Associated with Scope Previously Reported (+):		
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	48,790	
Additional Amount to Reconcile (+):	3,280	Cost growth is due to LBNL baseline used ER approved escal. indicies (approx. 2.7% for outyears).
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	**52,070**	

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Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Final Summary RFI Report	OK003-24		4/7/1999	4/7/1999			Y				
Quarterly Progress Report (1st Qtr FY99)	OK003-27		5/31/1999								
Quarterly Progress Report (2nd Qtr FY99)	OK003-23		8/31/1999								
Quarterly Progress Report (3rd Qtr FY98)	OK003-16		11/30/1998			11/30/1998					
Project Start	OK-003-11		4/15/1991								
Complete RFA	OK-003-12		9/30/1992								
Complete Site Assessment	OK-003-01		9/30/1999								
Start Risk Assessment	OK-003-02		10/1/1996								
Complete Risk Assessment	OK-003-03		9/28/1999								
Start Corrective Measure	OK-003-04		11/2/1998								
Complete Corrective Meas. Studies	OK-003-05		7/14/2000								
Complete Corrective Meas. Design	OK-003-06		8/31/2000								
Start Corrective Meas. Const.	OK-003-07		9/1/2000								
Complete Corrective Meas. Const.	OK-003-08		9/30/2003								
Corrective Measures Completion Report	OK-003-09		9/30/2003								
LT S&M Completion	OK-003-10		9/30/2032								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critial Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Final Summary RFI Report	OK003-24										Final RFI report submitted to regulators.
Quarterly Progress Report (1st Qtr FY99)	OK003-27									Y	

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Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critial Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Quarterly Progress Report (2nd Qtr FY99)	OK003-23									Y	
Quarterly Progress Report (3rd Qtr FY98)	OK003-16									Y	
Project Start	OK-003-11		Y	Y			1	1	1		Start of LBNL soil and groundwater remediation project.
Complete RFA	OK-003-12		Y				1	1	1		The RFA phase consisted of the identification of 163 release sites (Solid Waste Management Units and Areas of Concerns).
Complete Site Assessment	OK-003-01		Y				3	3	1		The RFI phase includes identifing sources and defining the extent of contamination.
Start Risk Assessment	OK-003-02										A risk assessment was performed for both hazardous and radiological contaminants.
Complete Risk Assessment	OK-003-03										A risk assessment was performed for both hazardous and radiological contaminants.
Start Corrective Measure	OK-003-04		Y				2	3	1		Prepare the Corrective Measures Plan.
Complete Corrective Meas. Studies	OK-003-05		Y				2	3	1		The CMS consists of two phases including evaluation of the effectiveness of each alternative for the corrective action, and analysis and evaluation of the testing results according to criteria developed during the CM planning process.
Complete Corrective Meas. Design	OK-003-06										This task includes engineering and designing the slected remedy, in addition to preparing construction

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Project **OK-003 / LBNL Soils and Groundwater (Environmental Restoration)**

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critial Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
											drawings, health and safety plan, quality assurance program plan, and an operations and maintenance plan.
Start Corrective Meas. Const.	OK-003-07		Y				3	3	1		Start excavation. treatment, and disposal of contaminated soil areas.
Complete Corrective Meas. Const.	OK-003-08		Y				3	3	1		Completion of excavation, treatment, and disposal of contaminated soil areas. Issue Corrective measures completion report.
Corrective Measures Completion Report	OK-003-09		Y			Y	2	3	1		Issue completion report.
LT S&M Completion	OK-003-10				Y						This work includes long term surveillance and maintenance and groundwater treatment operations of remediation areas at the LBNL site.

Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planne 200
RS														
Assess.	NR	51.00	0.00	51.00	7.00	19.00	18.00	13.00	7.00	12.00				
RS														
Cleanup	NR	49.00	0.00	49.00	2.00	14.00	17.00			1.00		22.00	12.00	
Rem. Waste														
Disposed	M3	2,116.00	0.00	2,116.00				88.00	269.00	535.00	765.00	268.00	191.00	

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Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035
RS													
Assess.	NR												
RS													
Cleanup	NR												
Rem. Waste													
Disposed	M3												

Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
RS										
Assess.	NR								4.00	68.00
RS										
Cleanup	NR									68.00
Rem. Waste										
Disposed	M3									1,759.00

Release Sites

Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
LABL	0001		AOC 1-1 B46A Former Motor-pool U/g Gasoline Stor. Tank	Tanks/Underground Storage Tanks	1997	1998	11/6/1997	1997	1998	11/6/1997		Y	Approved	N
LABL	0004		AOC 1-3 B71 LINEAR ACCELERATOR COOLING UNIT	Buildings & Equipment/Equipment	1994	1994	9/30/1994	2003	1996	7/5/1996		Y		N
LABL	0007		AOC 1-6 B71 TRANSFORMERS	Spills and Leaks/Pipeline Leaks	1997		11/6/1996	1997		11/6/1996		N	Approved	N
LABL	0008		AOC 1-7 B71 RADIATION RELEASE	Spills and Leaks/Surface Spills	1999	1999	9/30/1999	2002	2002	9/30/1999		Y		Y

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LABL	0010		AOC 1-9 SOLVENTS IN GROUNDWATER SOUTH OF B71	Surface and Groundwater/Groundwater Plumes	2000	2000		2002	2003			N		N
LABL	0012		AOC 10-2 B52 FORMER HAZARDOUS MATERIALS STORAGE AREA	Spills and Leaks/Surface Spills	1999	1998	7/22/1998	2002	2002			N		N
LABL	0013		AOC 10-3 (OIA 11-1) B25A SANITARY SEWER	Spills and Leaks/Pipeline Leaks	1999	1999		2002	2002			N		N
LABL	0014		AOC 10-4 (OIA 10-2) B25 SANITARY SEWER	Spills and Leaks/Pipeline Leaks	1998	1998	7/22/1998	2002	1998	7/22/1998		Y		N
LABL	0015		AOC 10-5 (OIA 10-3) SOLVENT CONTAMINATED GROUNDWATER IN AREA 10	Surface and Groundwater/Groundwater Plumes	2000	2000		2002	2003			N		N
LABL	0016		AOC 11-1 B74 UNDERGROUND DIESEL STORAGE TANK (TK-11-74)	Tanks/Underground Storage Tanks	2000	2000	1/7/1999	2002	2002	1/7/1999		Y		N
LABL	0017		AOC 11-2 B83 ABOVE-GROUND DIESEL STORAGE TANK	Tanks/Above Ground Storage Tanks	1997		11/6/1996	1997		11/6/1996		N	Approved	N
LABL	0018		AOC 11-3 (OIA 11-1) B83/B83A SANITARY SEWERS	Spills and Leaks/Pipeline Leaks	1997		11/6/1996	1997		11/6/1996		N	Approved	N
LABL	0022		AOC 12-4 (OIA 12-1 AND OIA 12-2) BUILDING 50 SANITARY SEWER DISLOCATIONS	Spills and Leaks/Pipeline Leaks	1998	1998	7/22/1998	2002	1998	7/22/1998		Y		N
LABL	0023		AOC 13-1 B62 HAZARDOUS MATERIALS STORAGE	Spills and Leaks/Surface Spills	1994	1994	9/30/1994	2003	2003			N		N
LABL	0024		AOC 13-2 B62 FORMER UNDERGROUND DIESEL STORAGE TANK	Tanks/Underground Storage Tanks	1997		7/1/1997	1998		7/1/1997		N	Pending	N
LABL	0026		AOC 13-4 B62 POSSIBLE SOLVENT SPILLS EAST OF B62	Spills and Leaks/Surface Spills	1997		11/6/1996	1997		11/6/1996		N	Approved	N
LABL	0030		AOC 13-8 (OIA 13-1) B62 ACID SEWER LINES WEST OF B62	Spills and Leaks/Pipeline Leaks	1997		11/6/1996	1997		11/6/1996		N	Approved	N

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Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
LABL	0031		AOC 13-9 (OIA 13-2) B62 SANITARY SEWERS SOUTH OF B62	Spills and Leaks/Pipeline Leaks	1997		11/6/1996	1997		11/6/1996		N	Approved	N
LABL	0036		AOC 14-5 GROUND WATER CONTAMINATION WELL MWP-7	Surface and Groundwater/Groundwater Plumes	2000	2000		2002	2003			N		N
LABL	0037		AOC 14-6 (OIA 14-2) B10 AND B80 SANITARY SEWERS	Spills and Leaks/Pipeline Leaks	1998	1998	7/22/1998	2002	1998	7/22/1998		Y		N
LABL	0038		AOC 14-7 (OIA 14-3) B37 PROPOSED ELECTRICAL SUBSTATION	Spills and Leaks/Surface Spills	1993	1993	9/30/1993	2003	2003			N		N
LABL	0040		AOC 2-1 B7E FORMER UNDERGROUND STORAGE TANK	Tanks/Underground Storage Tanks	2000	2000	1/7/1999	2002	2002			N		N
LABL	0041		AOC 2-2 B7 FORMER HAZARDOUS MATERIALS STORAGE AREA	Spills and Leaks/Surface Spills	1997		11/6/1996	2002	2002			N	Approved	N
LABL	0043		AOC 2-4 (OIA 2-1) "OLD TOWN" GROUNDWATER SOLVENT PLUME	Surface and Groundwater/Groundwater Plumes	2000	2000		2002	2003			N		N
LABL	0044		AOC 2-5 BUILDING 7 SUMP	Liquid Surface Impoundments/Sumps	1999	1998	7/22/1998	2002	2002			N		N
LABL	0046		AOC 4-1 B76 FORMER U/G GASOLINE STORAGE TANK (TK-02-76)	Tanks/Underground Storage Tanks	1997		7/1/1997	1998		7/1/1997		N	Pending	N
LABL	0047		AOC 4-2 B76 FORMER U/G DIESEL STORAGE TANK (TK-03-76)	Tanks/Underground Storage Tanks	1997		7/1/1997	1998		7/1/1997		N	Pending	N
LABL	0050		AOC 4-5 (OIA 4-1) SOLVENTS IN GROUNDWATER SOUTH OF B78	Surface and Groundwater/Groundwater Plumes	2000	2000		2002	2003			N		N
LABL	0054		AOC 5-4 B77 Sanitary Unit	Spills and Leaks/Surface Spills	1998	1998	7/22/1998	1999	1998	7/22/1998		Y		N
LABL	0057		AOC 6-3 B88 HYDRAULIC GATE UNIT	Spills and	1994	1994	9/30/1994	2003	2003			N		N

Project Baseline Summary Report

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Project **OK-003 / LBNL Soils and Groundwater (Environmental Restoration)**

Release Sites

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				Leaks/Surface Spills										
LABL	0059		AOC 7-1 B46 FORMER SCRAP YARD AREA	Spills and Leaks/Surface Spills	1994	1994	9/30/1994	2003	2003			N		N
LABL	0061		AOC 7-3 B46 HAZARDOUS MATERIALS STORAGE AREA	Spills and Leaks/Surface Spills	1994	1994	9/30/1994	2003	2003			N		N
LABL	0064		AOC 7-6 B58 FORMER HAZARDOUS MATERIALS STORAGE AREA	Spills and Leaks/Surface Spills	1994		9/30/1994	1995		1/31/1996		Y	Pending	N
LABL	0066		AOC 8-1 B70A UNDERGOUND DIESEL STORAGE TANK	Tanks/Underground Storage Tanks	1998	1998	5/4/1998	2002	1998	5/4/1998		Y		N
LABL	0067		AOC 8-2 B70 UNDERGROUND DIESEL STORAGE TANK	Tanks/Underground Storage Tanks	1997		12/3/1996	1997		12/3/1996		N	Pending	N
LABL	0070		AOC 8-5 B70 HAZARDOUS MATERIALS STORAGE AREA	Spills and Leaks/Surface Spills	1997		11/6/1996	1997		11/6/1996		N	Approved	N
LABL	0071		AOC 8-6 (OIA 8-1) B58/B70 SANITARY SEWER	Spills and Leaks/Pipeline Leaks	1998	1998	7/22/1998	2002	1998	7/22/1998		Y		N
LABL	0072		AOC 8-7 (OIA 8-2) B70A SANITARY SEWER	Spills and Leaks/Pipeline Leaks	1999	1999	9/28/1999	2002	2002	9/28/1999		Y		N
LABL	0075		AOC 9-2 B51 UNDERGROUND DIESEL STORAGE TANK	Tanks/Underground Storage Tanks	1997		7/1/1997	1998		7/1/1997		N	Pending	N
LABL	0080		AOC 9-7 (OIA 9-1) B61 SUSPECTED HAZARDOUS MATERIALS STORAGE AREA	Spills and Leaks/Surface Spills	1999	1998	7/22/1998	2002	1998	7/22/1998		Y		N
LABL	0081		AOC 9-8 (OIA 9-3) SANITARY SEWER LINES WEST OF OF BUILDINGS 51 AND 51B	Spills and Leaks/Pipeline Leaks	1999	1999		2002	2002			N		N
LABL	0082		AOC 9-9 (OIA 9-6) B51 SANITARY SEWER AND DRAINAGE SYSTEM	Spills and Leaks/Pipeline Leaks	1999	1999		2002	2002			N		N
LABL	0083		AOC-SW1 SITE WIDE CONTAMINATED	Surface and	1999	1999		2002	2003			N		N

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			HYDRAUGER DISCHARGES	Groundwater/Groundwater Plumes										
LABL	0088		SWMU 10-2 B5 FORMER DECONTAMINATION AREA	Spills and Leaks/Surface Spills	1999	1999	9/30/1999	2002	2002	9/30/1999		Y		Y
LABL	0089		SWMU 10-3 B5 FORMER OUTDOOR RADWASTE STORAGE AREA	Spills and Leaks/Surface Spills	2000	2000	9/30/1999	2002	2002	9/30/1999		Y		Y
LABL	0090		SWMU 10-4 B16 FORMER WASTE ACCUMULATION AREA	Spills and Leaks/Surface Spills	1998	1998	7/22/1998	2002	2002			N		N
LABL	0091		SWMU 10-5 B16 PRESENT WASTE ACCUMULATION AREA	Spills and Leaks/Surface Spills	1997		11/6/1996	1997		11/6/1996		N	Approved	N
LABL	0097		SWMU 11-2 B74 ABANDONED ABOVE GROUND RADWASTE HOLDING TANKS	Tanks/Above Ground Storage Tanks	1997		11/6/1996	1997		11/6/1996		N	Pending	Y
LABL	0098		SWMU 11-3 B74 SIX INACTIVE ABOVEGROUND RADWASTE HOLDING TANKS	Tanks/Above Ground Storage Tanks	1997		11/6/1996	1997		11/6/1996		N	Pending	Y
LABL	0108		SWMU 2-1 B7 FORMER PLATING SHOP	Spills and Leaks/Surface Spills	2000	1998	7/22/1998	2002	2002			N		N
LABL	0109		SWMU 2-2 B52B ABANDONDED ABOVE-GROUND LIQUID WASTE STORAGE TANK AND SUMP	Tanks/Above Ground Storage Tanks	1999	1998	7/22/1998	2002	2002			N		N
LABL	0110		SWMU 2-3 B17 FORMER SCRAP YARD & DRUM STORAGE AREA	Spills and Leaks/Surface Spills	1998	1998	7/22/1998	2002	2002			N		N
LABL	0115		SWMU 3-4 B69 FORMER SCRAP YARD AND DRUM STORAGE AREA	Spills and Leaks/Surface Spills	1998	1998	7/22/1998	2002	1998	7/22/1998		Y		N
LABL	0116		SWMU 3-6 B75 HAZARDOUS WASTE HANDLING & STORAGE FACILIT	Spills and Leaks/Surface Spills	2000	2000		2000	2003			N		N
LABL	0117		SWMU 3-7 B75 NATIONAL TRITIUM LABELING FACILITY	Spills and Leaks/Surface Spills	2000	2000		2003	2003			N		Y

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LABL	0121		SWMU 4-3 B76 MOTOR POOL COLLECTION TRENCHES (AND SUMP)	Waste/Trenches / Outfalls	1998	1998	7/22/1998	2002	2002			N		N
LABL	0147		SWMU 9-1 B51 VACUUM PUMP ROOM WASTE OIL TANK	Tanks/Above Ground Storage Tanks	1997		11/6/1996	1997		11/6/1996		N	Approved	N
LABL	0150		SWMU 9-4 B51 VACUUM PUMP ROOM SUMP & COLLECTION BASINS	Liquid Surface Impoundments/Sumps	1998	1998	7/22/1998	2002	2002			N		N
LABL	0152		SWMU 9-6 B51 MOTOR GENERATOR ROOM SUMP	Liquid Surface Impoundments/Sumps	2000	2000	9/21/1999	2002	2003			N		N
LABL	0160		AOC 9-11 FORMER COOLING TOWER SOUTHEAST OF BLDG B51	Spills and Leaks/Surface Spills	1998	1998	7/30/1998	2003	2003			N		N
LABL	0161		AOC 9-12 B51/64 FORMER TEMPORARY EQUIPMENT STORAGE AREA	Spills and Leaks/Surface Spills	1998	1998	7/22/1998	2003	2003			N		N
LABL	0162		AOC 9-13 B51 GROUDWATER PLUME	Surface and Groundwater/Groundwater Plumes	2000	2000		2003	2003			N		N
LABL	0163		SWMU 7-5 B58 SUMPS	Spills and Leaks/Surface Spills	1997		11/6/1996	1997		11/6/1996		N	Approved	N
LABL	0164		SWMU 10-10 B25 PLATING SHOP FLOORDRAIN	Spills and Leaks/Pipeline Leaks	2000	1998	7/22/1998	2002	2002			N		N
LABL	0166		AOC 7-6 B58 Former Hazardous Materials Storage Area	Spills and Leaks/Surface Spills	2000			2003				N		N
LABL	0167		AOC 8-6 (OIA 8-1) B58/B70 Sanitary Sewer	Spills and Leaks/Pipeline Leaks	2000			2002				N		N
LABL	0168		SWMU 406 B76 Present and Former Waste Accuulation Area #3	Spills and Leaks/Surface Spills	2000			2003				N		N
LABL	0169		SWMU 3-5 B69A Storage Area Sump	Liquid Surface Impoundments/Sumps	2000			2003				N		N

Project Baseline Summary Report

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Operations/Field Office: **Oakland** Print Date: **3/9/2000**

Site Summary Level: **Lawrence Berkeley National Laboratory** HQ ID: **0260**

Project **OK-003 / LBNL Soils and Groundwater (Environmental Restoration)**

Technology Needs

Site Need Code: OK99-08

Site Need Name: Removal of Tritium from Groundwater

Focus Area Work Package ID: SS-08 **Focus Area Work Package:** Saturated Zone Treatment Systems

Focus Area: SCFA **Agree with Technology Link:** Y

Benefits (Cost, Risk Reduction, Both): Risk Reduction

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate
Deep Soil Mixing	500	Unknown
Robotics Storage Tank - West	100	Medium

Related CCP Milestones	Related Waste Streams	Agree?	Change?
	01745: AGA1 - [Decayed] Decayable Aqueous Liquids	Y	N

Site Need Code: OAK-99-006-NM

Site Need Name: Decreasing Radioactive Lifetimes of Waste and Excess Nuclear Materials

Focus Area Work Package ID: **Focus Area Work Package:**

Focus Area: **Agree with Technology Link:** Y

Benefits (Cost, Risk Reduction, Both): Cost

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate
Surface Acoustic Wave Array Detectors	0	
Automated Data Interpretation Module (DIM)	500	Medium